SEATTLE FIRE DEPARTMENT

SFD Administrative Rule 26.01.04

SUBJECT:	EFFECTIVE DATE:
CUTTING, WELDING AND OTHER HOT WORK ON MARINE VESSELS	August 20, 2004
REFERENCES: **2003 Seattle Fire Code** **NFPA Standards 306, 307, and 312** **29 CFR 1915**	SUPERSEDES: Administrative Rule 49-1 Cutting, Welding and Other Hot Work on Marine Vessels Effective May 6, 2004 FCAB REVIEW DATE: August 17, 2004
NOTICE: Administrative Rules are established per Seattle Fire Code Section 102.7, and they are subject to the Administrative Sections 104.8, Modifications, 104.9, Alternative Materials and Methods, and 108, Appeals.	APPROVED: _____ JOHN H. NELSEN, FIRE MARSHAL

SECTION 1 -- SCOPE

1.1 General. The purpose of this regulation is to minimize personal injuries and property loss stemming from fires initiated by hot work activities on marine vessels and at marine related facilities by making safety inspections and issuing permits, with the least possible adverse impact on the maritime business community. This Administrative Rule shall be used in conjunction with Administrative Rule 26.02.04 that establishes specific requirements for the facilities at which hot work is conducted on marine vessels.

This regulation is an Administrative Rule and as such is adopted into Seattle City Ordinance through the 2003 Seattle Fire Code Section 102. The Rule is published as provided for in Seattle Municipal Code Chapter 3.02. Public compliance with the requirements set forth in this Rule is mandatory. The City of Seattle in coordination with members of Seattle's marine business community developed this Administrative Rule. Violations of this regulation will be investigated and prosecuted in accordance with the procedures of the Seattle Law Department. Violators are subject to criminal and civil penalties, and may be subject to the recovery costs of extinguishing marine fires determined to be caused due to a violation of requirements set forth in this Rule.

1.2 Definitions. For the purposes of this Rule, certain terms are defined as follows:

> **Adjacent spaces.** Those spaces in all directions from the subject space, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads.

Confined spaces. Any compartment of small size and limited access such as double bottom tank, cofferdam, or similar space which by virtue of its small size and confined nature can create or aggravate a hazardous condition.

Designated facility. Those piers, designated by the fire code official, and by virtue of their construction, location, fire protection and fire hydrant availability, are suitable to permit certain repairs to marine vessels.

Enclosed space. Any space, other than a confined space, which is enclosed by a bulkhead and overhead. The term includes cargo holds, tanks, quarters, and machinery spaces.

Fire watch. A person designated by the supervisor of the welding operation to watch for signs of fire. Such persons shall be familiar with Fire Department Permit Conditions, the area where the welding and cutting is to take place, and procedures for sounding an alarm in the event of fire.

Gangway. A ramp-like or stair-like means of access, provided to enable personnel to board or leave a vessel including accommodation ladders, gangplanks, and brows. Gangways shall be in accordance with 29 CFR 1915 and shall have a walking surface not less than 20 inches wide, be of adequate strength, maintained in safe repair and be safely secured. Each side of a gangway, and the turntable if used, shall have a railing with a minimum height of 33 inches measured perpendicularly from rail to walking surface at the stanchion, with a mid-rail. Rails shall be of wood, pipe, chain, wire or rope and shall be kept taut at all times.

Hot Work. Hot work is any construction, alteration, repair, or shipbreaking operation involving riveting, welding, burning, brazing, soldering, heating, use of powder-actuated tools or similar spark, arc or fire-producing activity. Grinding, drilling, abrasive blasting, or similar spark-producing operations are also considered hot work unless deemed otherwise by a marine chemist or when such operations are isolated physically from any atmosphere containing more than 10 percent of the lower explosive limit of a flammable or combustible substance, as determined by a Shipyard Competent Person**.**

Intervening barrier. A barrier that is an integral part of the vessel's structures which when closed will not permit the passage of flammable liquids or vapors.

Length of Vessel. The length overall (LOA) of the vessel as measured along the centerline.

Marine chemist. The holder of a valid Certificate issued by the National Fire Protection Association in accordance with the "Rules for the Certification of Marine Chemists."

Marine Vessel. Includes every description of watercraft or other artificial contrivance used as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.

Powder actuated device. Means a tool or machine that drives a stud, pin, bolt, or other type of fastener by means of an explosive charge.

Seizure of vessel. Marine vessels involved in violations of this regulation may be subject to being detained in Port, investigated (with a warrant), or seized, following a fire.

Ship repair. Means any repair of a marine vessel including, but not limited to alterations, modification, conversion, installations, cleaning, painting, and maintenance work and includes ship building and ship breaking.

Shipyard. A pier, wharf, or series of piers and related onshore facilities, designated by the fire code official, which by virtue of the pier construction, location, emergency vehicle access, fire protection, hydrant availability and onsite safety personnel, is suitable to permit repairs, including major conversions, on marine vessels of any length.

Shipyard Competent Person. An individual meeting one or more of the following requirements:

The holder of a valid Certificate issued by the National Fire Protection Association attesting that the holder has successfully completed a course of training as a Shipyard competent person.

The holder of a Certificate attesting that the holder has successfully passed a course of instruction in Shipyard competent person training that is accepted by the fire code official.

SECTION 2 -- PERMITS

2.1 General. A permit is required from the Seattle Fire Department to conduct hot work on marine vessels within the corporate city limits of Seattle. The fire code official's authority to require and issue such a permit is set forth in Section 105 of the Seattle Fire Code.

2.2 Temporary Permits

2.2.1 General. Temporary permits for hot work on marine vessels shall be identified as Level I hot work or Level II hot work to distinguish the fire hazards and fire-watch requirements associated with the work.

Temporary permits to perform hot work onboard passenger vessels at locations serving as passenger terminals when passengers or the public have access to the vessel must be specifically applied for and a site inspection from the Fire Marshal's Office must be conducted prior to issuance of any such permit. The method of obtaining permits for preapproved applicants set forth in Section 2.4 can not be used to obtain permits for hot work on passenger vessels as noted above. Such applications shall be approved on a case by case basis, provided that workers and conditions conform to site specific permit conditions.

2.2.2 Level I Hot Work Permits. Level I permits are temporary permits issued for hot work in areas or compartments that are not on or near foam insulation; do not contain or have not contained flammable or combustible vapors, coatings, fuel oils, hydraulic oil, lube oil, waste oil or other petroleum products. Level I hot work areas normally will not require a Marine Chemist Certificate (see Section 5.9 of this Rule) but inspection of the hot work area by a Shipyard Competent Person is always required. Such areas or compartments may include, but are not limited to:

- Ballast tanks, chain lockers and voids.
- Superstructures, deck house, galley and living spaces.
- Shell plating, framing decks, bulkheads.
- Main deck, dry cargo holds, dry stores and processing areas that are not insulated with flammable or combustible foam insulation.

Certain hot work operations normally classified as Level I may be classified as Level II hot work if deemed necessary by the Seattle Fire Department inspector or a Marine Chemist.

2.2.3 Level II Hot Work Permits. Level II permits are temporary permits issued for hot work in hazardous areas or compartments that are insulated with foam, contain or have contained flammable or combustible vapors, coatings, fuel oils, hydraulic oil, lube oil, waste oil or other petroleum products. Level II hot work areas will require a Marine Chemist Certificate (see Section 5.9 of this Rule). Such hazardous areas or compartments may include, but are not limited to:

- Fuel oil tanks and piping systems, including pumps, strainers, vents and its associated appurtenances.
- Hydraulic, lube, slops or waste oil tanks and their associated piping systems.
- Engine rooms, diesel generator rooms, reefer flats, machinery spaces, shaft alleys and steering gear compartments.
- Cargo tanks or compartments that contain or have contained hazardous materials including flammable or combustible gases, liquids or solids.
- Sewage holding tanks and piping systems, including pumps and vents.
- Foam-insulated compartments such as refrigerated cargo holds, fish holds or processing areas not in compliance with Section 6.2.2 of this document.
- Work conducted on refrigeration and/or cooling systems using freon or ammonia.
- Work on bulkheads and overheads directly adjacent to those compartments listed above.

Certain hot work operations normally classified as Level I may be classified as Level II hot work if deemed necessary by a Seattle Fire Department inspector or a Marine Chemist.

2.3 Annual Permits. An annual permit may be issued to companies that have demonstrated for an established time period, knowledge of, and consistent compliance with, the requirements of Administrative Rule 26.01.04. Additionally, any hot work that is conducted under the permit must be performed by employees of the company or by employees of subcontractors that are either hired by the company or under the direct operational control of the company and with the company's prior approval. Whether or not a subcontractor may perform work under the permit shall be at the discretion of the company, and the company may instead require that the subcontractor obtain its own temporary permit. This hot work must be performed at a location that is owned by the company and is a designated facility. Companies that can demonstrate a lasting commitment through a long-term property lease or other means may be considered as having met the ownership requirement.

2.4 Method of Obtaining Permits. Temporary marine hot work permits may be requested by telephoning the Fire Department's Marine Hot Work Permit Program at **689-WELD** 24 hours a day. Individuals who are not on the Preapproved Applicant List (see Section 2.5 of this Rule) requesting a permit will be directed to wait for an inspector from the Hazardous Materials Section of the Fire Marshal's Office to return their phone call during normal business hours for information about the

job and further direction. Preapproved applicants will be directed to provide sufficient information about the job to allow for a permit to be generated.

Temporary permits to perform hot work onboard passenger vessels at locations serving as passenger terminals when passengers or the public have access to the vessel must be specifically applied for and a site inspection from the Fire Marshal's Office must be conducted prior to issuance of any such permit. The method of obtaining permits for preapproved applicants set forth above can not be used to obtain permits for hot work on passenger vessels as noted above. Such applications shall be approved on a case by case basis, provided that workers and conditions conform to site specific permit conditions.

2.5 Preapproved Applicant List. The Seattle Fire Department "Preapproved Applicant List" is a list of Seattle area maritime professionals, who have demonstrated their competence and ability to conduct marine hot work activities in a safe manner in accordance with Fire Department requirements and Administrative Rule 26.01.04 for a designated time period. Qualifications for the list are as follows:

Each applicant who receives a minimum of six (6) temporary permits (Code No. 4915) during a six month period and is found to be in compliance with all permit conditions will be considered a pre-approved applicant after the six month period. Applicants who obtain fewer than six (6) permits (Code 4915) during a six month period will be considered a preapproved applicant only after six (6) permits have been issued and no permit violations are noted.

Alternatively, an applicant who does not meet the above described requirement for 6 permits in 6 months, may apply for pre-approved status if all of the following pre-requisites can be met: The applicant (1) possesses a current annual marine hot work permit, (2) has had no violations for a period of at least 24 months, and (3) can demonstrate to the Fire Marshal a satisfactory history of competence and compliance with fire department regulations with respect to marine hot work. Applications submitted on the basis of these alternate conditions will be considered on an individual basis, and may or may not be approved depending on the merit of the application. Those applicants who are granted a pre-approved status through this process will retain that status until (1) the applicant's annual permit is no longer valid, or (2) the applicant is cited for a violation.

2.6 Actually Beginning the Job. A Shipyard Competent Person (SCP) is required to perform frequent testing and inspections of all Level II hot work operations. Permit applicants will be asked to identify the SCP responsible for each hot work operation prior to commencement of each job. Additionally, a SCP may be required by the Marine Chemist or a Seattle Fire Department inspector to be continuously at the job site to oversee all aspects of any hot work operations.

If you are not on the "Preapproved Applicant List," or are working towards inclusion on the list, no hot work may commence until a site inspection has been conducted by the Fire Department and the inspector has issued the permit. Inspections related to issuing permits for those applicants that are not preapproved have the highest priority, and non-preapproved applicants will be contacted for an appointment during normal business hours as soon as possible after a permit request has been made.

Individuals on the "Preapproved Applicant List" are provided information through the Marine Hot Work Permit Program voice message center **(206-689-WELD)** when commencement of hot work may begin. All site inspections for jobs being conducted by preapproved applicants will be random and unannounced.

BEGINNING A HOT WORK JOB ON A MARINE VESSEL WITHOUT AN APPROVED PERMIT IS STRICTLY PROHIBITED IN THE CITY OF SEATTLE!

2.7 Responsible Party Identified on the Permit. The responsible party identified on the permit shall be the individual having responsibility for the job in its entirety, and is responsible for ensuring that the hot work is conducted in accordance with the restrictions and requirements of this regulation and the permit conditions listed on the actual permit.

2.8 Length of Permit Validity. Annual permits, (Code No. 4914), are issued for a one year period, and renewed yearly thereafter. Temporary permits (Code 4915) may be issued at the request of the applicant for periods of 2 days, 7 days, 15 days, 30 or 60 days. The expiration date of the permit will be clearly marked on the upper right hand corner of the permit. After the expiration date, the temporary permit ceases to be a valid permit. If hot work is to continue, a new permit must be obtained. Expired permits must be removed from the vessel, gangway, wheelhouse, or otherwise need to be completely obliterated from view.

2.9 Transfer of Permits. Permits are non-transferable. A permit is issued at one location, to one individual, for one set of specific circumstances on a single vessel. If the vessel moves locations, or the job is transferred to another individual, or the nature of the job changes, the permit becomes invalid and a new permit is required.

> **EXCEPTION:** Container vessels, on a regular schedule calling Seattle, may leave berth and return on the same permit, if the nature of the work is routine maintenance and repairs. A Marine chemist's certificate is required in accordance with OSHA regulations and NFPA 306.

Inspectors retain the right to waive the nontransferable requirement at their discretion, for safety or logistical reasons. When they do so, the originally issued permit shall be amended and signed by the inspector, on the customer and office copy.

2.10 Posting of Temporary Permits. Temporary permits are required to be maintained "ready for inspection" at all times during the length of the job. Permits shall be posted on the gangway, or in the wheelhouse, in plain view, visible to an inspector from the pier, wharf, or bulkhead, or wherever access to the vessel is gained. Failure to have the permit posted, or posting an expired permit shall be considered sufficient cause for removal from the “pre-approved applicant list.”

Preapproved applicants are required to post a Fire Department Marine Hot Work Program Certificate in the same manner as a permit while waiting for the actual permit to be received.

Annual permits are required to be available on site for viewing by the inspector upon request.

2.11 Permit Fees. Temporary Level I and Level II permits (Code 4915) shall have fees associated with them in accordance with Table 2.11-A (see City Ordinance):

TABLE 2.11-A TEMPORARY MARINE HOT WORK PERMIT FEES [1,2,3,4,5]

PERMIT DURATION (days)	OVERALL LENGTH OF THE VESSEL (feet)						
	<40	40<60	60<90	90<130	130<200	200<300	≥300
2	$58.	$82.	$105.	$128.	$152.	$175.	$198.
7	$82.	$105.	$128.	$152.	$175.	$198.	$222.
15	$105.	$128.	$152.	$175.	$198.	$222.	$245.
30	$128.	$152.	$175.	$198.	$222.	$245.	$269.
60	$187.	$210.	$233	$263.	$292.	$321.	$350.

[1] Fees apply to non-preapproved applicants.
[2] Fees for preapproved applicants equal one half of the fees identified in Table 2.11-A.
[3]Any preapproved applicant found to be in violation of permit conditions shall be removed from the preapproved applicant list and subject to non-preapproved applicant fees and conditions.
[4]Each applicant who receives a minimum of six (6) permits (Code 4915) during a six month period and is found to be in compliance with all permit conditions will be considered a preapproved applicant after the six month period. Applicants who obtain fewer than six (6) permits (Code 4915) during a six month period will be considered a preapproved applicant only after six (6) permits have been issued and no permit violations are noted.
[5]A temporary permit titled "Special Inspection / Review / Permit" (Code 1071) is required to perform hot work onboard passenger vessels at locations serving as passenger terminals when passengers or the public have access to the vessel. Such requests shall be approved on a case by case basis, provided that workers and conditions conform to site specific permit conditions. Fees for this permit are based on the current fee schedule for this permit.

2.12 Method of Payment. Permit fees for temporary permits issued to non-preapproved applicants may be invoiced after the permit has been issued, granted the responsible party at the job site is able and willing to sign the invoice and provide adequate billing information (correct address, contact person and telephone number). Permit fees for temporary permits issued to preapproved applicants will be invoiced on a monthly basis. Invoices which remain unpaid for a time exceeding one month will result in the loss of the invoice privilege, and subsequent permit request forms will be required to be accompanied by the fee payment and any outstanding balance prior to issuance of any permit.

Permit fees for annual permits must be paid in full prior to issuance of the permit.

Questions about billing, the status of a particular invoice, or method of remitting payment, can be answered by calling the Permit Section of the Fire Marshal's Office at 206-386-1331.

SECTION 3 -- SUITABLE LOCATIONS FOR CONDUCTING MARINE HOT WORK

3.1 General. Level I hot work activities may be conducted at almost any location in the City of Seattle except for those locations identified as prohibited in Section 3.3 of this Rule. Level II hot work activities may be conducted only at locations that have designated facility site permit issued by the Seattle Fire Department. Detailed requirements for designated facilities may be found in Administrative Rule 26.02.04.

3.2 Designated Hot Work Facilities. Designated Hot Work Facilities are those piers, designated by the fire code official, which, by virtue of their construction, location, fire protection and hydrant availability are suitable to permit certain repairs to vessels. The specific permit requirements are contained in Administrative Rule 26.02.04.

3.3 Prohibited Locations. Certain locations are not suitable for Level I or Level II marine hot work activities.

Level I hot work shall not be conducted at fuel terminals, passenger terminals, grain terminals, or terminals or piers at which the use is primarily residential or recreational in nature.

Level II hot work shall not be conducted at:

- Fuel terminals or piers
- Passenger terminals unless under special temporary permit.
- Grain terminals
- Piers where primary use is residential or recreational in nature
- Piers not possessing the required Fire Department permits.
- Vessels that are not immediately adjacent to the dock or pier. See also Section 3.5 of this Rule
- Combustible piers, floats or wharves, which are not equipped with suitable access for apparatus, availability of hydrant supply, or fire protection systems, as determined by the fire code official, or his appointed representative

3.4 Locations Suitable for Level I Hot Work. Level I hot work may be performed at the vessel's normal berth.

> **EXCEPTION:** Level I hot work shall **NOT** be performed at fuel terminals, passenger terminals, grain terminals, or terminals or piers at which the use is primarily residential or recreational in nature.

3.5 Hot Work Prohibited on Outboard Vessels. Marine hot work permits will not be issued to outboard vessels or any vessel that is not immediately adjacent to the dock or pier (i.e., no intervening vessels).

> **EXCEPTION:** Flat deck barges, when:
> - specifically approved under permit after a site inspection, and
> - sufficient fire and life safety provisions, including provisions for egress of workers, are present.

SECTION 4 -- INSPECTIONS

4.1 General. Fire Department inspectors may arrive at the job site randomly and unannounced to verify compliance with permit conditions. Inspectors may or may not be wearing a Fire Department uniform. Prior to conducting the necessary inspection, the inspector will present appropriate identification and request permission to board the vessel. If access to the vessel is denied or unnecessarily delayed, the permit may be immediately revoked.

4.2 Hours of Inspection. Routine inspections are normally conducted between the hours of 8:00 AM and 4:30 PM. However inspections may occur at any time of the day or night, including weekends.

4.3 What the Inspector Will be Looking For. When the Fire Department inspector arrives at the job site, the inspector will be looking for compliance with all requirements set forth in Administrative Rule 26.01.04, including, but not limited to: adequate access and egress to and from the vessel; availability of fire protection equipment; fire watch; Marine Chemist's Certificate; removal of foam insulation and combustibles; scope of the work to be conducted; and documentation of shipyard competent person status.

4.4 Recourse After an Inspection. It is the intention of the Seattle Fire Department to provide quality safety inspections and the highest level of customer service in order to adequately protect the citizens of Seattle, marine industry personnel, and fire fighters.
Any and all questions, comments, or concerns about Seattle's marine hot work program are welcome and should be directed to the Special Hazards Unit Lieutenant at 386-1342 during regular business hours. If concerns related to the requirements set forth in this administrative rule can not be resolved directly with the fire code official, an appeal in accordance with Section 108 of the Seattle Fire Code may be pursued.

SECTION 5 -- GENERAL PERMIT REQUIREMENTS

5.1 General. All requirements set forth in Section 5 of this Rule must be met prior to commencement of any Level I or Level II hot work operation and in order to obtain a permit.

5.2 Ability to Notify the Fire Department. A means shall be provided to rapidly contact the Fire Department in the event of an emergency. Such means shall be available within 200 feet of the work site.

5.3 Advance Preparations for Sealing the Vessel. Prior to the commencement of hot work, arrangements shall be made to close the vessel as soon as possible in the event of fire. Closure time shall not exceed 30 minutes. Such arrangements shall not require the use of ship's power to make the closures. Such closures shall be sufficient to ensure the efficient use of carbon dioxide (CO2) to extinguish the fire.

5.4 Gangways

5.4.1 General. Gangways shall be provided for access to vessels in accordance with Section 5.4 of this Rule.

EXCEPTION: Gangways are not required for vessels whose size or design permit boarders to step directly aboard from the dock and where the vessel is moored in such a way to prevent falling between the vessel and the dock during periods of poor visibility.

One gangway erected and a second one immediately available for use meets the requirement for a second gangway. Cranes located at marine terminals do not meet the second gangway requirement.

5.4.2 Gangway Requirement for Vessels Less than 200 Feet in Length. Vessels less than 200 feet in length shall have at least one gangway in accordance with OSHA Standard 1915.74 rigged from the vessel to the main pier or dock of the facility.

> **EXCEPTION:** Gangways are not required for vessels whose size or design permit boarders to step directly aboard from the dock and where the vessel is moored in such a way to prevent falling between the vessel and the dock during periods of poor visibility.

5.4.3 Gangway Requirement for Vessels 200 Feet or More in Length. Vessels 200 feet or more in length shall be provided with at least two gangways, in accordance with OSHA Standard 1915.74, to provide adequate access and egress to the vessel for fire fighting. At least one gangway must be rigged from the vessel to the main pier of the facility and the second gangway may be immediately available.

> **EXCEPTIONS:**
> 1. Container vessels located at container terminals for less than 72 hours.
> 2. Deck cargo barges that do not contain cargo consisting of flammable or combustible liquids.

5.5 Fire Watch

5.5.1 General. Individuals shall be designated as fire watches to look for and report fire in accordance with Section 5.5 of this Rule.

5.5.2 Conditions Requiring a Fire Watch. A fire watch shall be designated when hot work operations are taking place above or within 10 feet of combustible material or when specifically required by a Seattle Fire Department inspector, Marine Chemist or Shipyard Competent Person and for any Level II hot work unless specifically exempted and documented on a Marine Chemist Certificate.

5.5.3 Who Can Be a Fire Watch? A fire watch may be a member of the vessel's crew, or another person designated by the individual in charge of the hot work.

Any fire watch designated to watch Level II hot work operations on or near foam insulation is required to be a trained Shipyard Competent Person (SCP). A copy of the SCP certificate shall be on file in the Fire Marshal's Office.

Individuals conducting Level II hot work may not serve as their own fire watch.

5.5.4 Responsibilities of a Fire Watch. Each designated fire watch shall:

- Be present continuously during hot work operations to watch for fire and operate fire-extinguishing equipment to extinguish spot fires.
- Be maintained for at least 30 minutes after completion or interruption of hot work to detect and extinguish smoldering fires.
- Be trained in the use of available fire extinguishing equipment.
- Be capable of transmitting an alarm to the Emergency -- 911 center via telephone.
- Read and understand the Seattle Fire Department permit conditions, the Marine Chemist Certificate and the SCP report.

5.5.5 Watching Multiple Workers Performing Hot Work. When several workers are performing hot work at any one site, the fire watch shall have a clear view of, and immediate access to, each worker. No more than four workers performing hot work shall be attended by a single fire watch.

Additionally, a Shipyard Competent Person may be required by the Marine Chemist or the Seattle Fire Department inspector to be continuously at the job site to oversee all aspects of any hot work operations and perform frequent testing and inspections.

A SINGLE FIRE WATCH SHALL ATTEND NO MORE THAN FOUR WORKERS PERFORMING HOT WORK.

5.6 Adjacent or Blind Compartments. If adjacent or blind compartments are involved in any hot work job, fire watches shall be posted simultaneously in each blind area.

5.7 Fire Extinguishing Equipment

5.7.1 General. Portable fire extinguishing equipment shall be provided in accordance with Section 5.7 of this Rule.

5.7.2 Fire Extinguishers. One or more portable fire extinguishers with an Underwriter's Laboratory (UL) classification of not less than 2-A 40-BC shall be kept at the location where hot work is being conducted.

Extinguishers aboard the vessel which are protecting hazardous areas, such as galleys and engine rooms, may not be relocated from these areas to meet this requirement.

5.7.3 Hoselines. A fire hose of not less than 3/4-inch diameter capable of delivering not less than 12 gallons per minute shall be laid out and charged in the vicinity of hot work operations. Such hose shall be of sufficient length to reach all areas within the compartment or space where hot work is being conducted.

Additional 1-½ inch fire hoses capable of delivering not less than 50 gallons per minute with a controllable nozzle shall be continually available in the immediate area. Such hoses are not required to be charged unless specifically required by the Seattle Fire Department inspector or the Marine Chemist.

5.8 Shipyard Competent Person. A Shipyard Competent Person is required to perform frequent testing and inspections of each Level II hot work operation. Additionally, a Shipyard Competent Person may be required by the Marine Chemist or a Seattle Fire Department inspector to be continuously at the job site to oversee all aspects of any hot work operations.

The responsibilities of the Shipyard Competent person include, but are not limited to the following:

- Ensure that the conditions in any Seattle Fire Department permit are being complied with by those individuals performing hot work operations.
- Ensure and document in a Shipyard Competent log maintained at the hot work site that any requirements contained in a Marine Chemist Certificate are being complied with by those individuals performing hot work operations.
- Be continuously on duty at the job site to oversee all aspects of any hot work when required by the Marine Chemist Certificate. Personally perform tests and inspections in

the work areas and adjacent spaces prior to the commencement of any hot work operations.
- Personally continue to perform tests and inspections as often as necessary throughout the duration of hot work to ensure safe conditions are maintained and that hazardous conditions have not developed.
- Personally make an additional inspection at the end of each work shift or upon completion of the work, whichever comes first, in order to ensure that conditions are safe and no fire will start in the work area.
- Stop or shut down the hot work if permit conditions are not complied with, or if hazardous conditions are discovered or developed during the operations.

Additional duties of a Shipyard Competent Person may be found in OSHA 29 CFR 1915 Sub Parts A, B, C, D, & H.

5.9 Marine Chemist's Certificate. No person shall engage in hot work in or on the spaces listed below until a certificate setting forth that such work can be done safely is issued. Such certificates shall be valid only if they are issued by a Marine chemist certified by the National Fire Protection Association (NFPA).

A Marine Chemist Certificate shall be required prior to Level II hot work operations on any vessel and hot work in hazardous areas or compartments that are insulated with foam, contain or have contained flammable or combustible vapors, coatings, fuel oils, hydraulic oils, lube oil, waste oil or other petroleum products. Such hazardous areas or compartments may include, but are not limited to:

- Fuel oil tanks and piping systems, including pumps, strainers, vents and its associated appurtenances.
- Hydraulic, lube, slops or waste oil tanks and their associated piping systems.
- Engine rooms, diesel generator rooms, reefer flats, machinery spaces, shaft alleys and steering gear compartments.
- Cargo tanks or compartments that contain or have contained hazardous materials including flammable or combustible gases, liquids or solids.
- Sewage holding tanks and piping systems, including pumps and vents.
- Foam-insulated compartments such as refrigerated cargo holds, fish holds or processing areas not in compliance with Section 6.2.2 of this document.
- Work conducted on refrigeration and/or cooling systems using fluorocarbons or ammonia.
- Work on bulkheads and overheads directly adjacent to those compartments listed above.

Marine Chemist Certificates shall be issued in strict accordance with the requirements of NFPA 306 Standard for the Control of Gas Hazards on vessels.

5.10 Required Setback Distances. Marine hot work is inherently dangerous due to the convective heating of metal, unintended direct flame contact, and the rapid fire spread characteristics of certain insulating and wall covering materials found on vessels. Marine hot work should be scheduled exclusive of other activities (e.g., painting) whenever practicable.

With respect to the actual location of marine hot work on the vessel, the following separations shall apply:

1. Marine hot work shall be separated from the storage of flammable (e.g., gasoline) liquids by 100 feet and combustible liquids (e.g., diesel fuel) by not less than 50 ft. Where practicable, portable

containers of flammable or combustible liquids shall be removed from the vessel prior to commencement of hot work.

EXCEPTIONS:
1. When a Marine Chemist certifies the space safe for hot work.
2. Class III-B liquids (e.g. lubricating oils) in closed containers or systems unless hot work is being conducted on the system.
3. Separation from flammable liquids may be reduced to 50 feet if approved by the Marine Chemist.

2. Marine hot work shall be separated from the storage of combustible materials by not less than 25 ft.

EXCEPTION: When a marine chemist certifies the space safe for hot work.

3. Marine hot work shall be separated from combustible surfaces (e.g., paneling), and worker areas by not less than 10 ft, or an intervening noncombustible shield or fire blanket shall be used.

EXCEPTION: When a marine chemist certifies the space safe for hot work.

5.11 Housekeeping

1. Ensure that all combustible materials (construction debris, paper, foam dust and pieces, cardboard, wood, oily rags, paint rags, plastic, etc.) are removed from the area impacted by the hot work.

2. This also applies to the opposite sides of bulkheads, overheads and deck plates being welded or burned.

3. Escape routes from the hot work area should be clear of obstructions and trip hazards.

4. Fuel gas and oxygen hose connections shall be kept free of grease and oil.

5. Where practicable, portable flammable and combustible liquid containers shall be removed from the vessel.

5.12 Prohibited Activities. The following activities are prohibited during any hot work operations:

1. Flammable and combustible liquid use (other than that necessary to perform hot work operations) or transfer operations aboard the vessel on which hot work is to take place.

EXCEPTION: Spray painting or the application of other flammable compounds unless sufficient ventilation is provided to maintain the atmosphere at not more than 10 percent of the lower explosive limit for the particular material being applied as determined by a marine chemist or shipyard competent person. Monitoring of such areas shall be carried out by a shipyard competent person.

2. Hot work shall not occur within 200 feet of use or transfer of flammable liquids or gases.

3. Hot work shall not occur within 100 feet of use or transfer of combustible liquids.

EXCEPTION: Hot work shall not take place within 50 feet of the use or transfer of Class III-B combustible liquids by means of a hose-line.

4. Use and transfers of hazardous materials other than those specified above shall not occur within 100 feet of hot work operations.

EXCEPTION: Distance may be reduced to 50 feet when a fully closed intervening barrier exists.

SECTION 6 -- TECHNICAL REQUIREMENTS

6.1 General. In addition to the requirements of Section 5 of this Rule all requirements set forth in Section 6 of this Rule shall be met prior to commencement of any hot work operation and in order to obtain a permit.

6.2 Areas with Combustible Foam Directly Exposed.

6.2.1 General. When it is necessary to conduct hot work on an area that is covered by combustible insulation or where combustible foam is directly exposed, such insulation shall be removed in accordance with Section 6.2.2 of this Rule and additional fire protection shall be provided in accordance with Sections 6.2.3 and 6.2.4 of this Rule.

6.2.2 Foam Removal. Remove foam 36 inches in all directions.

EXCEPTION: When foam removal is impractical and the area has been certified safe by a marine chemist.

In all cases, exposed combustible insulation shall be wet down or covered with wet tarps or other suitable materials for a distance of not less than five (5) feet past the most distant point where sparks or slag will fly or fall.

All foam dust, bits and pieces shall be removed from the vessel prior to commencing hot work.

6.2.3 Fire Extinguishing Water. Unless required otherwise by the Marine Chemist Certificate, when hot work is being performed in areas where polyurethane foam insulation is present, one fire hose, not less than 1-½ inch in diameter, shall be continually laid out and charged in the vicinity of the hot work operations. One other uncharged 1-½ inch hose line shall be immediately available. The water service for the charged hose may be shore-side water supply or the vessels own water supply.

Such hose shall be of sufficient length to reach all areas within the compartment or space being worked on and/or into immediately adjacent spaces.

6.2.4 Fire watch. On marine hot work jobs involving combustible foam insulation, the fire watch, which must be a trained Shipyard Competent Person or approved equivalent training, shall pay particular attention to the border areas where foam exists, and be immediately available to extinguish incipient stage fires.

6.3 Areas with Hidden Foam or Foam Indirectly Exposed.

6.3.1 General. When hot work is being conducted on an area that has combustible insulation sprayed on the other side, it will be permitted to leave the insulation in place if all of the requirements in Section 6.3 of this Rule are met.

6.3.2 Fire Watch. A shipyard competent person shall be used as a fire watch and the fire watch shall be maintained for at least one hour past completion of the work.

6.3.3 Fire Extinguishing Water. One charged 1-½ inch hose line shall be continuously available in the area of the combustible insulation. One uncharged line shall be immediately available. Such hose shall be of sufficient length to reach all areas within the compartment or space being worked on and/or into immediately adjacent spaces. The water service for the charged hose may be shore-side water supply or the vessels own water supply.

6.3.4 Welding Method. The weld will be made in small (less than 3 inch) sections, cooled with water, and then another small section welded, cooled with water, and continue in this manner until the welding is completed.

6.3.5 Contaminated Foam. Any oil contaminated foam shall either be removed completely or removed back to clean foam prior to hot work commencing.

6.3.6 Reporting a Fire. Any sign of fire shall result in an immediate call to the Fire Department 911 number.

6.4 Removal or Relocation of Hazardous Materials. Hazardous materials must be removed from, or relocated within, the vessel in accordance with the specifications below if hot work operations are to be performed at any location where the risk of rapid fire spread is high and the materials are so arranged that they cannot be adequately cooled by Fire Department hose-lines in the event of a serious fire without entering the hull or superstructure.

Areas that have a risk of rapid fire spread include, but are not limited to:

1. Compartments insulated with polyurethane foam.
2. Compartments that contain highly combustible interior finishes.

The following materials must be removed from the vessel prior to hot work operations in high risk areas:

1. Compressed gas cylinders except those needed for welding and cutting.
2. Flammable liquids.
3. Explosives.

The following materials must be relocated within the vessel prior to hot work in high risk areas:

1. Flammable refrigerant gases shall be pumped back into the main receiver(s) of the system.
2. Combustible liquids when located in accordance with setback distances specified in Section 5.10 of this Rule.

6.5 Ventilation. Forced draft exhaust ventilation of adequate capacity to remove hot work vapors and any accumulation of flammable vapor shall be installed prior to performing any work in an enclosed or confined space.

6.6 Testing Spaces for Hazardous or Flammable Vapors. The permissible level of concentration of flammable vapors or gases shall not exceed ten percent (10%) of the lower explosive limit in all parts of the spaces in which hot work is to be performed.

Pipe lines that may convey hazardous substances into the spaces that have been certified as "Safe for Workers -- Safe for Hot Work" shall be disconnected or blanked off, or other positive means shall be taken to prevent the discharge of hazardous substances from entering the space.

Manholes and other closures that were secured at the time of the tests shall remain secured. If it is necessary to open secured spaces or to manipulate any valves that may tend to alter conditions, hot work operations shall stop and not resume until further tests have certified the space is "Safe for Workers-Safe for Hot Work."

6.7 Fuel Cylinders and Hoses. All cylinders or containers used for the storage of compressed gases shall be constructed, charged and marked in accordance with nationally recognized safe practices.

Cylinders shall be stored in locations where they are not subject to excessive rise in temperature, mechanical injury, or tampering. All cylinders (including empty ones) shall have their caps in place and all valves tightly closed.

Oxygen cylinders in storage shall be separated from fuel gas cylinders or combustible materials (especially oil and grease) by not less than 20 feet, or by a non-combustible barrier at least 5 feet high having a fire resistive rating of at least one half hour.

Cylinders, valves, regulators, hose and other apparatus and fittings shall be kept free of oil or grease of any type. Such devices shall not be handled with greasy or oily hands, gloves or other greasy or oily materials.

All compressed gas cylinders, including those in use, shall be adequately secured to prevent falling or being knocked over.

Hose lines shall be inspected frequently for leaks, burns, torn or worn areas, loose connections or other defects that may render the hose unfit for service. Defective lengths of hose shall be discarded.

Oxygen and fuel gas cylinders shall be placed far enough away from the hot work operation to ensure that they will not be unduly heated by radiation from heated materials, sparks or slag, or by misdirection of the torch flame.

ALL TORCHES AND HOSE SHALL BE DISCONNECTED FROM THE CYLINDERS AT THE END OF WORK AND SHALL NOT BE LEFT BELOW DECK OR IN CONFINED SPACES.

Fuel gas cylinders shall not be placed below the main deck, in confined spaces, or under overhanging decks where flammable gases that are lighter than air may accumulate.

6.8 Fuel Gas Manifolds. Fuel gas manifolds shall:

- Bear the name of the substance they contain in letters at least 1 inch high which shall be either painted on the manifold or located on a sign attached to the manifold,

- Be placed in a safe and accessible location in the open air. They shall not be located within enclosed or confined spaces,

- Have hose connections, including both ends of the supply hose that leads to the manifold, of a type that will prevent the hose from being interchanged between the fuel gas and oxygen manifold and supply header connections. Hose connections shall be kept free of grease and oil, and

- When not in use, manifold and header hose connections shall be capped.

- Nothing shall be placed on top of a manifold, when in use, which will damage the manifold or interfere with the quick closing of the valves.

6.9 Vessel's Own Fire Protection System. During hot work operations, all of the vessel's fire protection systems shall remain in service.

EXCEPTION: When hot work is being conducted on the fire protection system.